

Chapter 2

How Students Learn Analysis And Communication: Three Designs For Learning

How do college students learn abilities? Asking this question made it clear to us that we had to take into account more than our own assumptions and convictions. We had to create a learning environment that would enable the *student* to see these abilities at least as clearly as we thought we did, and would enable her to develop them effectively.

Each of us worked individually and in team and department work sessions to identify *analysis* and *communication* as they naturally occur in our disciplines in general, and in the particular courses we were offering. In this manner, we were able fairly rapidly to sketch out a common approach, while using our actual teaching as an ongoing "field test" of that approach, constantly refining and redesigning it. Repeating this semesterly cycle of theorizing and practice over several years now, we have found three key elements which contribute so powerfully to the student's learning that we regard them as indispensable to the learning structures we design. They are *explicitness*, *multiplicity*, and *individualization*.

I: THE DIALOG OF EXPLICITNESS

In order for our students to be able to deal with analysis and communication, our first task was to make clear how these related to the specific topics or tasks students work with in our courses. That meant we first had to work our own way deductively from the realm of the generalized abilities to the realm of classroom activity.

We began by breaking each ability into a sequence of levels, ranging from what we thought the student would most likely be able to handle when beginning college to what we wanted her to be doing by graduation. These gave us a way to make our expectations of student performance more *explicit*, and to pace and focus the learning process.

We broke analysis and communication into six levels, the first four being "general" levels required of every student and the last two being "specialized" levels appropriate to her major. The six levels we have identified for each ability are:

ANALYSIS	COMMUNICATION
1 Observes accurately	1 Assesses own communicating
2 Makes justifiable inferences	2 Communicates with analytic consciousness of the process
3 Relates parts or elements in patterns	3 Communicates with effective control of the process
4 Integrates patterns into coherent systems	4 Integrates effective communication within the framework of academic disciplines
5 Compares and tests frameworks in her discipline(s)	5 Develops and applies theoretical perspectives
6 Integrates frameworks into a professional synthesis	6 Integrates communication modes effectively in professional contexts

These levels of analysis and communication provide milestones or standards by which we can assess performance, as well as point a direction for development. In a system where no grades are given, they also serve as a means for charting each student's progress.

We should stress that the levels are not an invariable sequence that we have somehow discovered and through which all humans inevitably pass. They are a series of focuses we have chosen for the student's attention. In analysis, for example, it seems that one probably most often makes inferences by holding up what one has observed against relationships or patterns one *already* knows. We have chosen, for what we think are fairly obvious logical and pedagogical reasons, to move from (1) observation to (2) inference to (3) making relationships. We use the levels to focus the student's attention on one process at a time, to help her become thoroughly conscious of it, and to develop her confidence and versatility in using it.

Our next step was to break open each level into a set of more specific criteria. What are the hallmarks, we asked ourselves, of an activity like "observing accurately" or "communicating with effective control of the process"? Which particular elements can we and the student look to?

In dealing with communication, we identified certain general concerns. These include awareness of thought structure and ability to use it, a consistent attention to the other persons in the relationship, and a sure awareness of conventions appropriate to the particular mode and form of communication. But in order to be explicit enough about these concerns to make them useful to the student, we further identify criteria in terms of a particular mode. So we use a number of related but quite different-looking sets of college-wide criteria for each level of communication. For example, at Level 3:

WRITING	READING
1. Establishes context by clarifying limits of situation, and by making explicit relationships between various sources of ideas (own experience, instructors, research, general knowledge, specific authors)	1. Identifies writer's context and/or organizing framework including essential assumptions
2. Consistently uses words or expressions that show awareness of the audience's degree of knowledge, values, need for clarity, right to an opinion, and expectation of interest	2. Shows understanding of necessary vocabulary words either by recognition or by context
3. Consistently follows appropriate conventions with understanding	3. Identifies explicit and implicit relationships of writer/ thought/reader/ (e.g. purpose, tone, stance, attitude)
4. Shows overall sense of structuring ideas for an audience	4. Identifies explicit and implicit thought relationships (e.g. example, definition, analogy, cause, effect, deduction induction, metaphor)
5. Uses adequate development for clarification of message—with examples and/or evidence	5. Shows awareness of own reading processes and/or strategies
6. Shows consistent sense of own composing process and strengths and weaknesses in own writing	6. Shows awareness of specific strengths and weaknesses in own reading performance
7. (Criteria for appropriate content to be specified by instructor in discipline)	

(There are comparable sets of criteria for Speaking and Listening as well as for Media, Quantitative, and Computer Literacy.)

In dealing with analysis, we agreed to have the faculty in each discipline specify criteria in their own language, in terms descriptive of the analytic processes students would actually use in that field. Then we synthesized generic criteria from their experiences, like the following criteria for analysis at Level 4:

1. Out of an explicit framework, articulates and distinguishes between observations, inferences, and relationships in work under investigation
2. Shows awareness of assumptions, implications, and limitations of any framework used
3. Identifies principle(s) that organizes or accounts for ways that elements relate in the work
4. Articulates how above principle(s) provides meaning in the work under investigation
5. Shows awareness of how the affective and intuitive relate to the cognitive in her own analyzing process and abilities

Finally, in each discipline and course, we have had to specify the performance we want the student to undertake. This is not unlike the problem of creating an assignment — but once we had worked our way from the general ability through the levels and criteria, we had a sharply new perspective on this familiar teaching task.

For one thing, our decision to become more explicit about our goals has sometimes brought about a change in the substance of assignments. In introductory science, our lab "experiments" had often been only demonstrations of theorems learned in the lecture. They had made the theory more real to the student, and had developed her ability to follow directions and manipulate lab equipment. But in order to develop her ability to observe, we have had to hold off on the theorems, and create more open-ended labs. We now present the student with an event and challenge her to describe it, to find ways to quantify her description and make it repeatable. In a poetry class when focusing on analysis, we might put off discussions of the author's intent or the poem's meaning and first ask the student to observe carefully what has actually been stated, what may have been implied, and then what in each reader's experience may cause her to make inferences slightly different from someone else's.

The way in which we present assignments has also changed. We are careful to include (or ask the student to select and specify) an audience, purpose, and whatever other circumstances might best

assist the student to provide meaning in a given situation. The writing assignment, for instance, is one we have used in a second year psychology course:

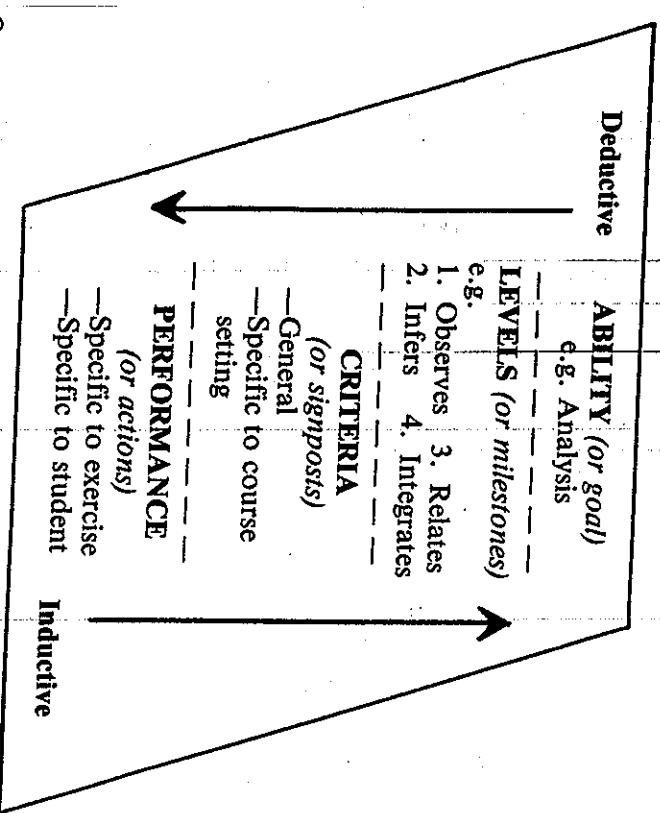
(Focus: To demonstrate understanding of basic concepts of behavior disorders, personality theory, and treatment, and to communicate that understanding orally.)

You are invited to write a 5-7 page paper to be used as reading material in the inservice training of RNs who are preparing to do volunteer clinical work. Your task is to review a problem area from the psychosomatic perspective called "disregulation." The hospital training director chose you to write this review because you are an honor student in a personality and psychopathology course. Therefore that director expects you to exhibit your mastery of the three major areas of the course: personality theory, behavior disorder, and psychotherapeutic treatment. Your objective in the paper is to take a problem like anorexia nervosa and determine whether or not it would qualify as a psychosomatic disorder. Whatever your conclusions, you should describe the best hope for a "cure" for your problem area. You will need to provide a description of the "disease" as well as review the treatment approaches currently in use.

The reminders about audience and purpose, simple though they might seem, represent a profound change for both teacher and student. For us, they represent the admission that we had frequently left audience and purpose vague, with the result that most of our students' papers were written to the teacher by default or to no audience at all. For our students, specifying a fairly realistic audience and purpose has meant a dramatic increase in their sense of the assignment's value and in their ability to undertake it effectively, which has in turn enabled them to gain new confidence in their own writing.

As professional educators we had, of course, always acknowledged the importance of being explicit. We had always striven to make our subjects and assignments clear, to explain them in terms of our intentions and goals — in hopes that the student might understand what we expect and why, and find her own motivation and direction through the learning experience. What we are now doing by starting with the abilities of analysis and communication, and working our way deductively to the level of the assignment, simply gives each of us a clearer and more detailed picture of the larger contexts. It also enables us to present our students for the first time with a set of explicit expectations and criteria shared by the whole faculty across all our disciplines.

The student, too, has a renewed responsibility to be explicit. While the instructor's efforts are to be explicit create the *framework* within which teaching and learning occur, the student's efforts produce the *activities* from which her learning can be inferred, evaluated, and directed. The interaction between these two can be represented graphically:



Once we as instructors have rendered our thoughts and intentions as visible as might be helpful, the student must then do likewise. First of all, she has to generate something — a speech, a set of notes, an action, a diagram, an essay, a drawing, her participation in a panel — translating her thought into perceivable action. Frequently, she will use the criteria in order to guide and revise her performance while it is in process.

Then we and the student together work inductively from the data of her performance, making inferences about her learning. Together we unfold her assumptions, her prior learning, her distinctive patterns of thinking and acting. Applying the criteria, we confirm the degree of her developing ability in this particular performance.

As she accumulates performances over time, further refining the ability, the student also internalizes the criteria and thus can infer effective performance herself. Eventually, after repeated performances in several settings, we infer that the student has demonstrated the ability.

The primary means for doing this inductive work of explicitness is what we call *feedback*. A student typically encounters feedback in two forms. She may first be given a list of the relevant criteria with those she met indicated in some way. But she also receives individual written and/or oral explanations of how well she did on the assignment. These comments do more than simply state again whether she met or did not meet a criterion. In them, each assessor — whether it is her instructor, a community professional in her field, or a classmate — tells the student to what extent she succeeded or did not succeed, and points out to her exactly where or why.

We consciously take advantage of this opportunity to make our thinking explicit for the student, to lay out the reasoning that led us to the conclusions marked on the criteria sheet. The student is thus able to *observe* another's analysis and also to challenge an assessor's judgments if the reasoning seems unclear or based on inaccurate assumptions.

Feedback also gives meaning to the criteria. For example, a beginning student will often have difficulty saying how well she structured her speech or paper. But as she receives consistent feedback from different assessors on the structure of her speeches and papers, she becomes able to see for herself how well she is performing. Having seen the criteria applied to several performances, she can better understand their meaning and the expectations they represent.

This rather fluid process, giving meaning to a set of criteria through feedback in several different settings, also assists the student to move away from absolutist thinking. She begins to understand writing, for example, as more than the rules and rubrics of grammar. She sees it as an ever-changing forum for her thought. She experiences the "rules" as dynamic, arbitrary at times, and always situation-specific. At the same time, however, the framework of levels and criteria ensures that she is assessed continually on consistent standards in all disciplines, from course to course. This not only makes for continuity but also gives the student a sense of stability and integrity as she develops her abilities to analyze and communicate.

The ongoing "dialog of explicitness," we have found, really works as something of a cycle with both partners participating on both sides. Once we have worked our way through the process deductively as curriculum designers, we move to the inductive side to work with the student inferring upward from her specific performances to the general ability. As she advances and gains confidence, the student begins to take some of the deductive role of the faculty, selecting her learning experiences (from course projects to independent studies and off-campus internships) and helping to define which abilities will be involved and how her development of them will be measured. In

addition of course, what we learn inductively from our students' actual experiences provides the primary force and guidance for reshaping the curriculum and our teaching.

The importance of explicitness finally rests in the central role of consciousness in learning. Basically, we ask ourselves and our students to be explicit in order to raise our thinking and our communicating to a more conscious level. Why? Making our processes conscious makes them *accessible* to ourselves and others, and renders our thinking and communicating patterns *modifiable* by bringing both content and process out into the light. It also helps to make the abilities *reproducible*, enabling the student to build habitual patterns through observation, reflection, and repeated action.

Explicitness works as the catalyst for consciousness; consciousness as the catalyst for understanding. As the student's thought processes are increasingly made accessible to herself and to others, and as she is consciously able to modify her thinking and communicating through negotiated understanding, she forms her own habitual patterns of analytic thought and effective communication. Her need for development, as she learns to interpret the implicit more surely in her analyzing and to embed it more gracefully in her communicating.

EMPHASIZING CONTEXTS

Being explicit is for us mostly a matter of making clear the relationships between an event or task or idea and its contexts. We use the word "context" here in its broadest popular sense of "surrounding circumstances." How inclusive do we make the realm of those circumstances? A deceptively simple answer would be that it includes whatever gives to the event or idea meaning that needs to be understood by someone — either communicator or responder. Actually we are attempting to get at some of the aspects of context that many contemporary theorists are probing.*

In a provocative synthesizing article, for example, Anthony Petrosky** argues that one's comprehension/composition arises from three factors — "the text, our affective and cognitive frameworks

*See, for example, Elliot G. Mishler, "Meaning in Context: Is There Any Other Kind?" *Harvard Educational Review*, 49 (February, 1979), 1-19; David Bartholomae, "Teaching Basic Writing: An Alternative to Basic Skills," *Journal of Basic Writing*, 2 (Spring/Summer, 1979), 85-100; F. C. Bartlett, *Remembering* (Cambridge: Cambridge University Press, 1932); Robert Anderson, "The Notion of Schemata and the Educational Enterprise" in R. Anderson, R. Spiro, and W. Montague, eds., *Schooling and the Acquisition of Knowledge* (Hillsdale, New Jersey: Erlbaum, 1977).

**From Story to Essay: Reading and Writing," "College Composition and Communication, 33 (February, 1982) 21, 22.

(or prior knowledge), and the context for reading." Thus, he proposes, "readers have to explain why they see what they do by explicating the forces that drive their discussion." Although at this point Petrosky separates context from the reader's knowledge and feelings, he is dealing with the explicitness of context that we consider significant enough to make an object of learning.

Further on in the article, Petrosky, in summarizing David Bartholomae's work toward a pedagogy for basic writers, asserts that "one of the important distinctions between good and bad public academic discourse is, then, that good public discourse articulates this prior knowledge or individual point of view so that it is accessible to others who need the information in order to understand the writer and his or her contexts." Here Petrosky seems to be extending the ordinary external aspects of context. He includes, as we would, whatever is internal to the communicator that can be identified as surrounding circumstances because they affect the meaning he/she makes — knowledges, beliefs, feelings, associations, assumptions.

Actually, most of our students have seldom considered "context," or the importance of making contexts explicit. They may have learned that one can often infer the meaning of a word in a text by considering the surrounding words and sentences, but they do not often see that any event must be looked at in context in order to be fully understood. At first, having to look at the situation that surrounds an event (even the event of her own writing or speaking) strikes the beginning student as a peculiar intrusion. Eventually, however, the habit of looking for context frees her analysis from the prison of assumed certainty, and frees her communication from the aimless writing and speaking often characteristic of beginning efforts.

We therefore make quite a point of bringing "context" into the open. This critically important habit of mind for both analysis and communication does not arise full-blown in response to our first explicit assignment. The student develops her sensitivity to context gradually, we have found, as she moves from being able (with guidance) to see a simple immediate context toward being able independently to perceive and consider several larger contexts simultaneously. For example, the specified writing criteria for establishing context, or clarifying limits of situation and sources of thinking, are:

- Level 1 Clarifies for reader at the start the basic elements of framework and purpose (*What* am I telling *whom* under *what conditions* and *why*?)
- 2 Continues to clarify context of thought out of that framework, distinguishing own observations

- 3 Makes explicit relationships between various sources of ideas (own experience, instructors, research, general knowledge, specific authors)
- 4 Clarifies the preceding in relation to framework(s) from academic disciplines

Preparing a beginning student to analyze an article as an active reader, we point out that, like words in a sentence, academic articles do not exist without context. They appear within journals or books; they are dated; they come out of particular academic disciplines; they are written by people with particular credentials. Beyond that, their writers shape their meaning out of particular perspectives — sometimes selected for a given purpose, sometimes assumed as an unstated bias.

We also discuss with our students that their own writing and speaking do not occur in a vacuum. We stress making context clear so that their message can be understood. We insist that they make explicit for themselves aspects like the audience, the purpose of the communication, their personal goals, their role and stance in relation to the audience and the topic, and their organizing framework. We state, in their papers and speeches, whichever of these elements of context would clarify their message. By this practice, students not only remind themselves of the context, but they let the audience in on their perspective.

The beginning student often uses a simple formula approach, listing the “who, what, why, and to whom” in her opening. This approach, although not a sophisticated one, helps her become habitually aware of setting context. After a while, however, she may tire of this repetitive formula and begin to experiment with more interesting and imaginative ways to establish context. She may try to imitate the “context-setting devices” she has learned to identify as a critical reader (a process we encourage). As she does so, she moves her own context-setting further into the fabric of her text or speech. Eventually, it becomes an informing awareness that sustains her entire communication.

In like manner, we work to develop her sensitivity to context as an important tool for handling data critically, for assessing arguments and theories, and for conducting her own inquiries. From the beginning, we ask the student to clarify which information in a paper or speech is her own opinion, which the instructor’s opinion, which the exbook author’s, and so on. Later, we extend this to distinguishing inference from observation, evidence from conclusion, individualized

synthesized experience. She does this with her own communicating and also with the texts and articles, videotapes and art works she is studying in her various courses.

The student discovers how context shapes intellectual or practical inquiry as surely as it shapes communication, as she applies the approaches of different disciplines (or of different schools within a single discipline) to a common problem. She learns to trace the influence of such broad contexts as social and cultural settings — whether she is examining the meanings evoked by a piece of 12th century Buddhist sculpture, looking at the impact of social and political forces on a scientific investigation like atomic fission or genetic engineering, or tracing attitudes toward a public child care proposal among the citizens of a multi-ethnic metropolis.

Eventually, we expect the advanced student to be able to perceive and make explicit a whole array of contexts, both in her analyzing and in her communicating. These expectations converge when, as a beginning professional, she sets forth her own “credo.” In this she outlines the framework of assumptions and values which guide her thinking and practice, and relates them to her field, her community and culture, and her world. Beyond formulating this statement, the student must communicate it — as applied to a major professional issue — before an audience of peers. She also applies it in extended field experiences where she analyzes her involvement exhaustively to derive her “theory in use” and compare it, with the assistance of a mentor, to her “espoused theory.”*

The beginning student tends to see all this emphasis on context as simply a set of requirements. While she usually zeroes in soon on audience and purpose as visibly relevant, she may still accept the other kinds of context as something she must cope with at our insistence. Gradually, however, she grows beyond this “checklist” mentality as she comes to realize how context actually does create meaning, and how multiple contexts inevitably converge about an event or symbol.

Finally, the advanced student actively seeks to develop the habit of looking at and being explicit about contexts — as many contexts as possible — as the distinguishing quality of genuinely effective analysis and communication. For our most successful students, the contextual habit has become so ingrained even during college that they tend to become unaware that they are doing it. The heightened self-consciousness we have created, by means of focused self

* These terms were used by Chris Argyris and Donald Schon in describing a similar process they have developed for training graduate interns. *Theory in Practice: Increasing Professional Effectiveness*. San Francisco: Jossey-Bass, 1974.